WHAT IS CLAIMED IS:

1. An enhanced vision system for mobile vehicles, comprising:

an array of vision sensors fixedly mounted on the exterior of a vehicle, each sensor being capable of generating image signals;

a recording medium for storing the image signals from the array of vision sensors;

a processor for sampling the stored image signals from the recording medium and producing an output signal therefrom;

a helmet-mounted display connected to receive the output signal from the processor and display it on a see-through visor; and

a tracking system associated with the helmet-mounted display that monitors the movement of the head of the wearer of the display and transmits a tracking signal to the processor, the processor producing the output signal based on feedback from the tracking signal.

2. The system of claim 1, wherein the vehicle is an aircraft, and wherein the array of vision sensors is mounted close to the cockpit area such that the image signals originate from a location proximate the wearer of the helmet-mounted display.

3. The system of claim 2, wherein the array of vision sensors is mounted in the upper radome area of the nose of the aircraft.

4. The system of claim 1, wherein the vision sensors are infrared sensors, and wherein one of the infrared sensors has higher resolution than the others and is forward-looking.

5. The system of claim 4, wherein the higher resolution infrared sensor is located in the center of the array of vision sensors.

6. The system of claim 1, wherein the vehicle is an aircraft, and wherein the array of vision sensors is mounted in the nose area and has a downwardly-looking elevational field-of-view.

7. The system of claim 6, wherein the array of vision sensors has an elevational field-of-view of approximately 24°.

8. The system of claim 1, wherein the vehicle is an aircraft, and wherein the array of vision sensors is mounted in the nose area and has a field-of-view straddling the horizontal horizon.

9. The system of claim 8, wherein the array of vision sensors has an elevational field-of-view of approximately 51°.

10. The system of claim 1, wherein the array of vision sensors provides at least a hemispherical field-of-view.

11. The system of claim 10, wherein the array vision sensors provides a spherical field-of-view.

12. The system of claim 1, wherein at least one of the vision sensors additionally provides an infrared search and track function.

13. The system of claim 1, further including at least one other sensor separate from the array of vision sensors that provides a separate signal to the processor that then combines it with the output signal.

14. The system of claim 13, wherein the one other sensor is a vision sensor oriented differently than the array of vision sensors.

15. The system of claim 14, wherein the array of vision sensors is forward-looking, and wherein the one other vision sensor is rearward-looking.

16. The system of claim 14, wherein the array of vision sensors provide a series of adjacent image signals that are combined by the processor into a wide field-of-view output signal, and wherein

the signal from the one other vision sensor is overlaid on the wide field-of-view output signal as a picture-in-picture image.

17. The system of claim 13, wherein the one other sensor generates a real-time map signal that is combined by the processor into the output signal and displayed on the helmet-mounted display outside an image produced by the array of vision sensors.

18. The system of claim 13, wherein the one other sensor monitors an operational parameter of the vehicle and generates a corresponding signal.

19. The system of claim 18, wherein the operational parameter of the vehicle is selected from the group consisting of:

speed;

altitude;

attitude; and

engine status.

20. The system of claim 1, wherein further including a manual input device to the processor, wherein the output signal may be manually disabled in select areas on the helmet-mounted display.